



09/762045

#3

SEQUENCE LISTING

<110> Reindl, Andreas
Mejia, Patricia Leon
Palmas, Juan Manual Esteves
Gracia, Maria Araceli Cantero
Ebneeth, Marcus
Herbers, Karin

<120> DNA sequence coding for a 1-deoxy-D-xylulose-5-phosphate synthase and overproduction thereof in plants

<130> 0817/000006/MEC

<140> US 09/762,045
<141> 2001-02-01

<150> PCT/EP99/05467
<151> 1999-07-30

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<170> PatentIn Vers. 2.0/WordPerfect 6.0

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Gln	Ala	Tyr	Pro	His	Lys	Ile	Leu	Thr	Gly	Arg	Arg	Asp	Lys	Ile	Gly	
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Ser	Glu	Tyr	Asp	Val	Leu	Ser	Val	Gly	His	Ser	Ser	Thr	Ser	Ile	Ser	
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Ile	Leu	Asn	Asp	Asn	Glu	Met	Ser	Ile	Ser	Glu	Asn	Val	Gly	Ala	Leu	
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 Thr Leu Phe Glu Glu Leu Gly Phe Asn Tyr Ile Gly Pro Val Asp Gly
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 His Asp Val Leu Gly Leu Ile Thr Thr Leu Lys Asn Met Arg Asp Leu
 260 265 270
 Lys Gly Pro Gln Phe Leu His Ile Met Thr Lys Lys Gly Arg Gly Tyr
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 Glu Pro Ala Glu Lys Asp Pro Ile Thr Phe His Ala Val Pro Lys Phe
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 305 310 315 320
 Tyr Ser Lys Ile Phe Gly Asp Trp Leu Cys Glu Thr Ala Ala Lys Asp
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 Asn Lys Leu Met Ala Ile Thr Pro Ala Met Arg Glu Gly Ser Gly Met
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 Val Glu Phe Ser Arg Lys Phe Pro Asp Arg Tyr Phe Asp Val Ala Ile
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 370 375 380
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 385 390 395 400
 Asp Gln Val Leu His Asp Val Ala Ile Gln Lys Leu Pro Val Leu Phe
 405 410 415
 Ala Ile Asp Arg Ala Gly Ile Val Gly Ala Asp Gly Gln Thr His Gln
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 Gly Ala Phe Asp Leu Ser Tyr Leu Arg Cys Ile Pro Glu Met Val Ile
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 Met Thr Pro Ser Asp Glu Asn Glu Cys Arg Gln Met Leu Tyr Thr Gly
 450 455 460
 Tyr His Tyr Asn Asp Gly Pro Ser Ala Val Arg Tyr Pro Arg Gly Asn
 465 470 475 480
 Ala Val Gly Val Glu Leu Thr Pro Leu Glu Lys Leu Pro Ile Gly Lys
 485 490 495
 Gly Ile Val Lys Arg Arg Gly Glu Lys Leu Ala Ile Leu Asn Phe Gly
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 Thr Leu Met Pro Glu Ala Ala Lys Val Ala Glu Ser Leu Asn Ala Thr
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Ile Met Gly Gly Ala Gly Ser Gly Val 565	Asn Glu Val Leu Met Ala His 570 575	
Arg Lys Pro Val Pro Val Leu Asn Ile Gly Leu Pro Asp Phe Phe Ile 580 585 590		
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gagcactccg atgcgcggct cccgcgccag cagcaccagg agccggccgt ccagatgatc 180
gatcgccacg gcagcccctc cagtggatcat cctgtac atg cag ccc cac gcc atg 235
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Gly Gly Ala Leu Asn Thr Leu Ser Ser Gly Gln Ala Asn Tyr Cys Ala
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cct tgc gga acg gag cga ccc tgc cgc cat gac gca gac cac aca cca 331
Pro Cys Gly Thr Glu Arg Pro Cys Arg His Asp Ala Asp His Thr Pro
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cac tcc cga cac cgc ccg gca ggc cga ccc ctt ccc ggt gaa ggg aat 379
His Ser Arg His Arg Pro Ala Gly Arg Pro Leu Pro Gly Glu Gly Asn
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Gly Arg Gly Arg Leu Arg Arg Arg Gln Arg Gln Ala Gly Arg Ala Leu
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ctc cac cgc ctt cgg cat gca gct tgt ggc gta ctc cgg acc gga gaa 475
Leu His Arg Leu Arg His Ala Ala Cys Gly Val Leu Arg Thr Gly Glu
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Arg Gln Pro Arg Asp Arg Phe Val Arg Pro His Gln Arg Leu Gly Thr	
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ctt cgt cct cac ctc cgt cat caa gcc cgc cac ccc ctg ggg cca ctt	571
Leu Arg Pro His Leu Arg His Gln Ala Arg His Pro Leu Gly Pro Leu	
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Pro Arg Arg Pro Cys Gly Arg Ala Arg Arg Arg Arg Arg Arg Pro Arg	
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His Arg Gly Pro Gly Arg Pro Arg Arg Pro Arg Val Arg Asp Arg Ala	
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Arg Arg Pro Leu Gly Arg Arg Ala Val Arg Ala Glu Gly Arg Ala Arg	
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His Gly Arg Pro Arg Arg Asp Arg His Leu Arg Gln Asp Pro Pro His	
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Pro Arg Arg Pro Asp Arg Leu Arg Arg Pro Leu Pro Pro Arg Leu Arg	
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Gly Arg Arg Pro Asp Arg Arg Thr Ala Arg Pro Pro His Leu Pro Gly	
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cat cga cca ctg cgt cgg caa cgt cga gct cgg ccg gat gaa cga atg	907
His Arg Pro Leu Arg Arg Gln Arg Arg Ala Arg Pro Asp Glu Arg Met	
215 220 225 230	
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Gly Arg Leu Leu Gln Gln Gly His Gly Leu His Glu His Glu Gly Val	
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Arg Gly Arg Arg His Arg Asp Arg Val Leu Gly Ala Asp Val Glu Gly	
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Arg Gly Arg Arg His Ala Gln Gly Gln Val Pro Asp Gln Arg Ala Arg	
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Pro Arg Gln Glu Glu Val Pro Asp Arg Arg Val Pro Gly Val Leu Arg	
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Arg Arg Gly Arg Pro Ala His Arg Ala Glu His Gly	
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gacaccctcg gggagtgggt gggcgacacc cgcgctccccg tcgacaccct gcgcgagctg	1268

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Asp	Ala	Asp	His	Thr	Pro	His	Ser	Arg	His	Arg	Pro	Ala	Gly	Arg	Pro	35	40	45	
Leu	Pro	Gly	Glu	Gly	Asn	Gly	Arg	Gly	Arg	Leu	Arg	Arg	Gln	Arg	50	55	60		
Gln	Ala	Gly	Arg	Ala	Leu	Leu	His	Arg	Leu	Arg	His	Ala	Ala	Cys	Gly	65	70	75	80
Val	Leu	Arg	Thr	Gly	Glu	Arg	Gln	Pro	Arg	Asp	Arg	Phe	Val	Arg	Pro	85	90	95	
His	Gln	Arg	Leu	Gly	Thr	Leu	Arg	Pro	His	Leu	Arg	His	Gln	Ala	Arg	100	105	110	
His	Pro	Leu	Gly	Pro	Leu	Pro	Arg	Arg	Pro	Cys	Gly	Arg	Ala	Arg	Arg	115	120	125	
Arg	Arg	Arg	Arg	Pro	Arg	His	Arg	Gly	Pro	Gly	Arg	Pro	Arg	Arg	Pro	130	135	140	
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Ala	Glu	Gly	Arg	Ala	Arg	His	Gly	Arg	Pro	Arg	Arg	Asp	Arg	His	Leu	165	170	175	
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Leu	Pro	Pro	Arg	Leu	Arg	Gly	Arg	Arg	Pro	Asp	Arg	Arg	Thr	Ala	Arg	195	200	205	
Pro	Pro	His	Leu	Pro	Gly	His	Arg	Pro	Leu	Arg	Arg	Gln	Arg	Arg	Ala	210	215	220	

Arg Pro Asp Glu Arg Met Gly Arg Leu Leu Gln Gln Gly His Gly Leu
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 His Glu His Glu Gly Val Arg Gly Arg Arg His Arg Asp Arg Val Leu
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Ser Thr Glu Gln Thr Asn Phe Val Ser His Val Pro Ser Ser Leu Ser	
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Leu Pro Gln Arg Arg Thr Ser Leu Arg Val Thr Ala Ala Arg Ala Thr	
35 40 45	
ccc aaa ctc tcc aac cgt aaa ctc cgt gtc gcc gtc atc ggt ggt gga	192
Pro Lys Leu Ser Asn Arg Lys Leu Arg Val Ala Val Ile Gly Gly Gly	
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Pro Ala Gly Gly Ala Ala Ala Glu Thr Leu Ala Gln Gly Gly Ile Glu	
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acg att ctc atc gag cgt aag atg gac aat tgc aag cct tgc ggt ggc	288
Thr Ile Leu Ile Glu Arg Lys Met Asp Asn Cys Lys Pro Cys Gly Gly	
85 90 95	
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Ala Ile Pro Leu Cys Met Val Gly Glu Phe Asn Leu Pro Leu Asp Ile	
100 105 110	
att gat cgg aga gtg acg aag atg aag atg att tcg ccg tcg aac att	384

Ile	Asp	Arg	Arg	Val	Thr	Lys	Met	Lys	Met	Ile	Ser	Pro	Ser	Asn	Ile	
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Ala	Val	Asp	Ile	Gly	Arg	Thr	Leu	Lys	Glu	His	Glu	Tyr	Ile	Gly	Met	
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Val	Arg	Arg	Glu	Val	Leu	Asp	Ala	Tyr	Leu	Arg	Glu	Arg	Ala	Glu	Lys	
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Ser	Gly	Ala	Thr	Val	Ile	Asn	Gly	Leu	Phe	Leu	Lys	Met	Asp	His	Pro	
				165				170						175		
gag	aat	tgg	gac	tcg	ccg	tac	act	ttg	cat	tac	act	gag	tac	gat	ggc	576
Glu	Asn	Trp	Asp	Ser	Pro	Tyr	Thr	Leu	His	Tyr	Thr	Glu	Tyr	Asp	Gly	
			180					185					190			
aaa	act	gga	gct	aca	ggg	acg	aag	aaa	aca	atg	gag	gtt	gat	gct	gtc	624
Lys	Thr	Gly	Ala	Thr	Gly	Thr	Lys	Lys	Thr	Met	Glu	Val	Asp	Ala	Val	
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Ile	Gly	Ala	Asp	Gly	Ala	Asn	Ser	Arg	Val	Ala	Lys	Ser	Ile	Asp	Ala	
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Gly	Asp	Tyr	Asp	Tyr	Ala	Ile	Ala	Phe	Gln	Glu	Arg	Ile	Arg	Ile	Pro	
225					230				235						240	
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Asp	Glu	Lys	Met	Thr	Tyr	Tyr	Glu	Asp	Leu	Ala	Glu	Met	Tyr	Val	Gly	
				245					250					255		
gat	gat	gtg	tcg	ccg	gat	ttc	tat	ggc	tgg	gtg	ttc	cct	aag	tgc	gac	816
Asp	Asp	Val	Ser	Pro	Asp	Phe	Tyr	Gly	Trp	Val	Phe	Pro	Lys	Cys	Asp	
		260						265					270			
cat	gta	gct	gtt	gga	aca	ggc	act	gtg	act	cac	aaa	ggc	gac	atc	aag	864
His	Val	Ala	Val	Gly	Thr	Gly	Thr	Val	Thr	His	Lys	Gly	Asp	Ile	Lys	
	275						280					285				
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Lys	Phe	Gln	Leu	Ala	Thr	Arg	Asn	Arg	Ala	Lys	Asp	Lys	Ile	Leu	Gly	
	290					295					300					
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Gly	Lys	Ile	Ile	Arg	Val	Glu	Ala	His	Pro	Ile	Pro	Glu	His	Pro	Arg	
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cca	cgt	agg	ctc	tcg	aaa	cgt	gtg	gct	ctt	gta	ggc	gat	gct	gca	ggg	1008
Pro	Arg	Arg	Leu	Ser	Lys	Arg	Val	Ala	Leu	Val	Gly	Asp	Ala	Ala	Gly	
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tat	gtg	act	aaa	tgc	tct	ggc	gaa	ggg	atc	tac	ttt	gct	gct	aag	agt	1056
Tyr	Val	Thr	Lys	Cys	Ser	Gly	Glu	Gly	Ile	Tyr	Phe	Ala	Ala	Lys	Ser	
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Phe Tyr Arg Ser Asn Pro Ala Arg Glu Ala Phe Val Glu Met Cys Asn
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Asp Glu Tyr Val Gln Lys Met Thr Phe Asp Ser Tyr Leu Tyr Lys Arg
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Val Ala Pro Gly Ser Pro Leu Glu Asp Ile Lys Leu Ala Val Asn Thr
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32